

**TWO NEW GENERA, TWO NEW SPECIES OF BIDESSINE WATER  
BEETLES FROM SOUTH AMERICA  
(COLEOPTERA: DYTISCIDAE)**

PAUL J. SPANGLER

Department of Entomology, Smithsonian Institution,  
Washington, D.C. 20560

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Each of the two new genera and species described below are represented by a single male specimen. Hoping more specimens could be obtained, I have kept these specimens since they were collected 11 years ago. Because no more specimens of these unique beetles have been obtained I describe them here and dedicate this article to Hugh B. Leech, my friend and fellow water beetle enthusiast, on the occasion of his 70th birthday.

**Hughbosdinius**, new genus

Body form (Fig. 1) elongate-oval; lateral margins moderately discontinuous between pronotum and elytra; dorsum moderately convex. Head without transverse cervical stria or suture behind eyes; clypeus not thickened nor margined. Ultimate and penultimate segments of labial palpi broadened, subtriangular. Pronotum with narrow, lightly impressed, incurved plicae not connected by a transverse groove; sides narrowly evenly margined from base to apex. Scutellum concealed. Elytra without basal plicae or sutural striae; narrowly evenly margined laterally; epipleura shallowly excavated basally, without transverse subbasal carina. Prosternum strongly longitudinally carinate on midline; process narrow between midcoxae, apical portion broad, indistinctly but slightly depressed medially and margins indefinite, sides parallel, apex broadly rounded. Intercoxal process of metasternum narrow, the lateral margins continuous with metacoxal cavities. Metasternum deeply, transversely, and broadly depressed behind mesocoxae. Metacoxal processes not strongly incised at middle; with very narrow median longitudinal groove terminating on anterior margin of intercoxal process of metasternum; coxal lines slightly converging anteriorly. Last abdominal sternum moderately concave apicomediaally. Anterior and middle tarsi pseudotetramerous; third tarsal segment moderately bilobed. Tarsal claws long, slender, and equal in length. Protibiae evenly arcuately rounded on apex (Fig. 5). Metatibial spurs straight. Metatrochanter and metafemur typically bidessine, not enlarged (Fig. 6). Male genitalia complex, with parameres jointed; median lobe slightly modified hydroporine

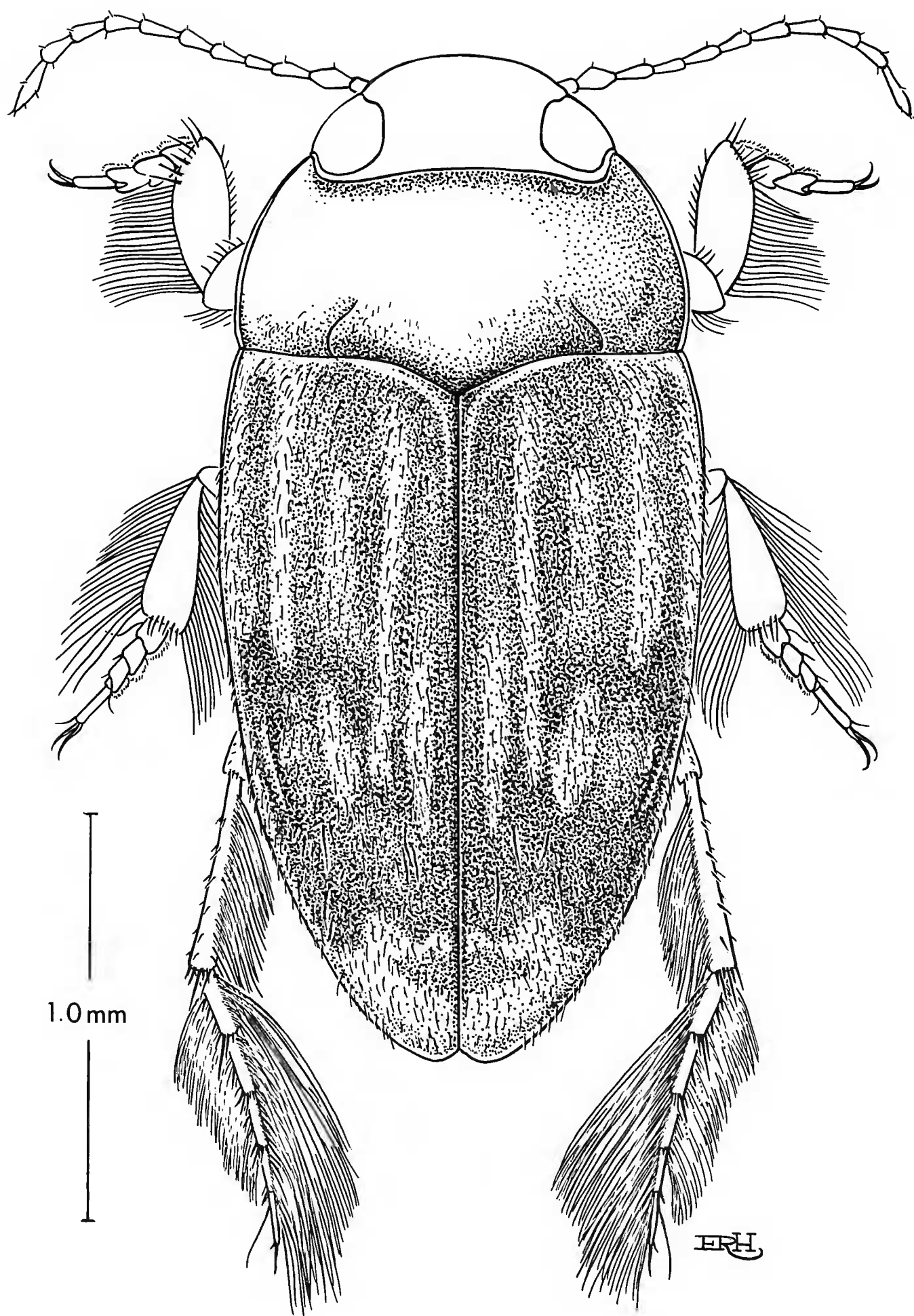


Fig. 1. *Hughbosdinius leechi*, n. gen., n. sp., habitus view.



type. Dorsum moderately finely densely punctate. Integument with opalescent sheen especially on elytra, metasternum, and second abdominal sternum.

*Type-species.*—*Hughbosdinius leechi*, new species.

*Etymology.*—*Hughbosdinius*, named for Hugh Bosdin Leech, in honor of his 70th birthday, in respect for his many excellent contributions to our knowledge of aquatic Coleoptera, for his years of encouragement and his selfless response to endless requests for assistance in all groups of insects. Gender: masculine.

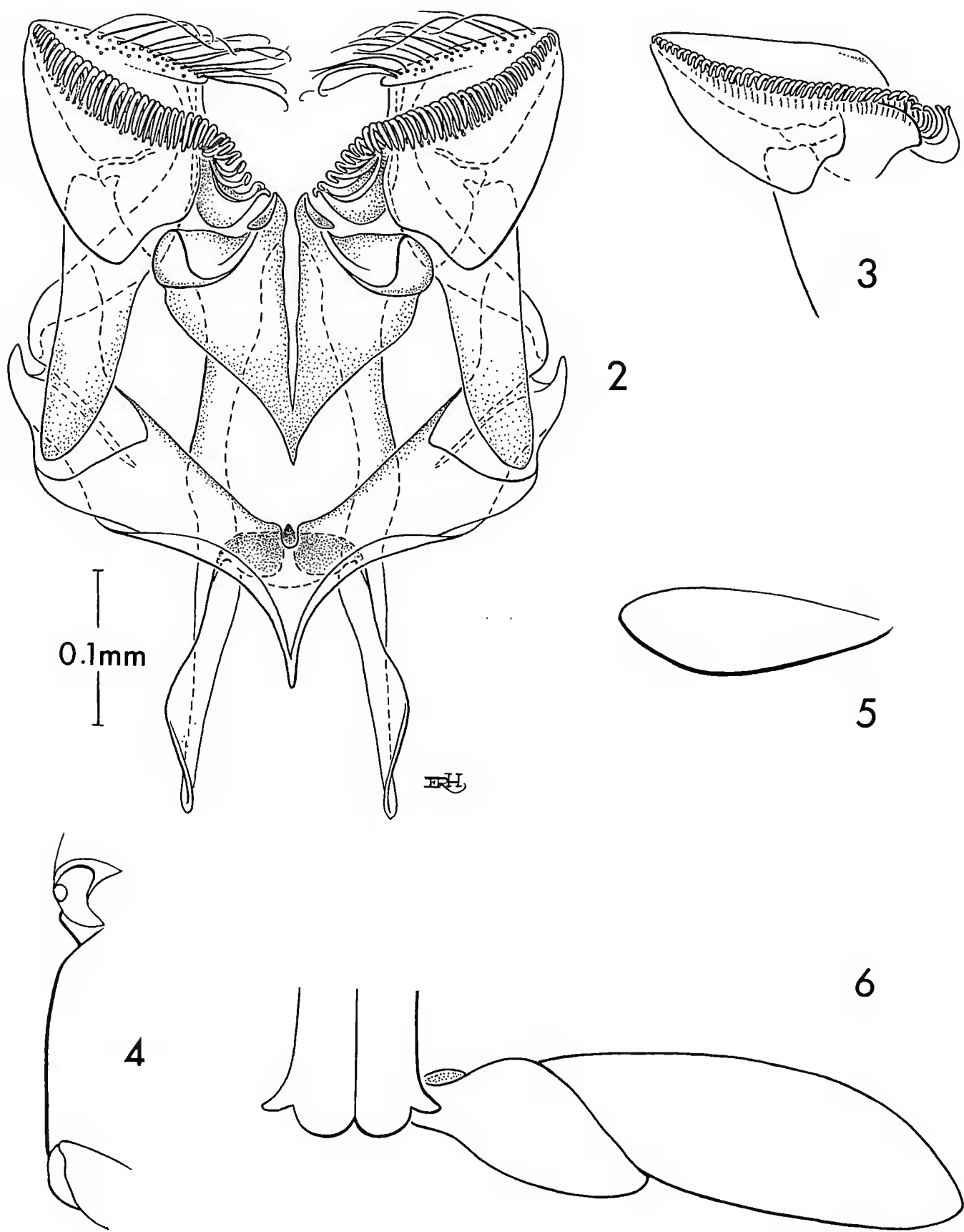
***Hughbosdinius leechi*, new species**  
(Figs. 1–6)

Holotype male: Body form (Fig. 1) elongate-oval. Length 2.5 mm; greatest width 1.5 mm. Color reddish brown; head and pronotum concolorous. Elytron indistinctly vittate-fasciate, with dark reddish-brown vittae as follows: a sutural, three on disc, and three lateral maculae in a row (an interrupted lateral vitta); vittae interrupted in humeral area, on lateral third just anterior to midlength, on lateral two-thirds just posterior to midlength, and mostly terminated in a transverse fascia well before apex. Integument of elytra, metasternum, and second abdominal sternum with opalescent reflection in certain light. Venter reddish brown.

Head shining, smooth between fine, sparse punctures; punctures on disc separated by about 4 or 5 times their width; clypeal punctures indistinct; with slender yellowish setae arising from the punctures. Antenna slender, segments not compactly attached. Clypeus not thickened nor margined. Labrum sparsely finely punctate and narrowly deeply emarginate apico-medially. Ventral surface of head very finely and sparsely punctate.

Pronotum arcuate laterally, sides finely evenly margined for entire length; base moderately bisinuate; apicolateral angles acute; posterolateral angles obtuse; punctures coarser than those on head, sparse on disc, slightly closer laterally; discal punctures separated by 5 or 6 times their width; shallow, thin, strongly incurved plicae on base extending forward about one-third length of pronotum; sparse, slender, yellowish setae arising from punctures. Prosternum strongly longitudinally carinate on midline. Prosternal process narrow between midcoxae; apical portion broad, about three times wider than narrowest width between midcoxae; indistinctly but slightly depressed medially and margins indefinite; sides parallel; apex broadly rounded; surface finely densely punctate. Apex of prosternum broadly rounded and extending almost to midlength of mesocoxae. Mesosternum typical, unmodified. Intercoxal process of metasternum separated from posterior part of metasternum by a deep, transverse, broad depression (Fig. 4).

Scutellum hidden.



Figs. 2–6. *Hughbosdinius leechi*, n. gen., n. sp. Fig. 2, Male genitalia, ventral view. Fig. 3, Paramere, medial view of apex. Fig. 4, Metasternum in profile, Fig. 5, Protibia, outline. Fig. 6, Metatrochanter and metafemur, ventral view.

Elytron without basal plicae or sutural stria; arcuate and margined laterally; apex moderately rounded. Surface punctate similarly to head but punctures coarser and slightly denser; punctures on disc separated by 2 or 3 times their width; each puncture bearing a long, slender, yellow seta. Cuticle between punctures microalutaceous. Epipleuron shallowly excavated basally; without a carina; surface microalutaceous; sparsely, finely punctate almost to apex.

Venter mostly microalutaceous. Metacoxal plates microalutaceous; with coarse, seta-bearing, sparse punctures (except posteromedially); punctures separated by 2 or 3 times their width. Abdominal sternum 2 finely microalutaceous; sterna 3, 4, and 5 mostly smooth; sterna 3 and 4 each with a transverse row of seta-bearing punctures near posterior margin. Front and middle coxae moderately densely, moderately coarsely punctate. Hind trochanter smooth except for a few punctures. Femora smooth except for a few coarse sparse punctures. Front and middle legs pseudotetramerous; first, second, and third segments broad, bearing dense pads of setae modified as cupules; fourth segment minute, hidden between lobes of third segment. Tarsal claws slender, elongate, and equal in length. Front, middle, and hind tibiae each with a fringe of long natatory setae on inner and outer surfaces. Front tibia with apex arcuately rounded (Fig. 5). Metatibial spurs moderately long, straight. Metatrochanter and metafemur unmodified, typical bidessine type (Fig. 6).

Male genitalia complex with parameres jointed and hydroporine median lobe as illustrated (Figs. 2 and 3).

*Etymology*.—*leechi*, named for Hugh B. Leech for the reasons mentioned under the generic etymology and in appreciation for his advice and assistance with numerous aspects of my studies of aquatic beetles through the years.

*Type-data*.—Holotype male: VENEZUELA: Barinas: Obispo, 25 Feb. 1969, P. and P. Spangler. USNM Type No. 76698, deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

*Habitat*.—The type-specimen was collected along the margin of Rio Masparro in a pool of standing water; elevation 183 m.

### **Youngulus, new genus**

Body form (Fig. 7) elongate-oval; lateral margins moderately discontinuous between pronotum and elytra; dorsum moderately convex. Head without transverse cervical stria or suture behind eyes; clypeus not thickened nor margined; ultimate and penultimate segments of labial palpi unmodified, cylindrical. Pronotum with narrow, lightly impressed, incurved plicae not connected by a transverse groove; sides narrowly evenly margined from base to apex. Scutellum concealed. Elytra without basal plica (or with ex-



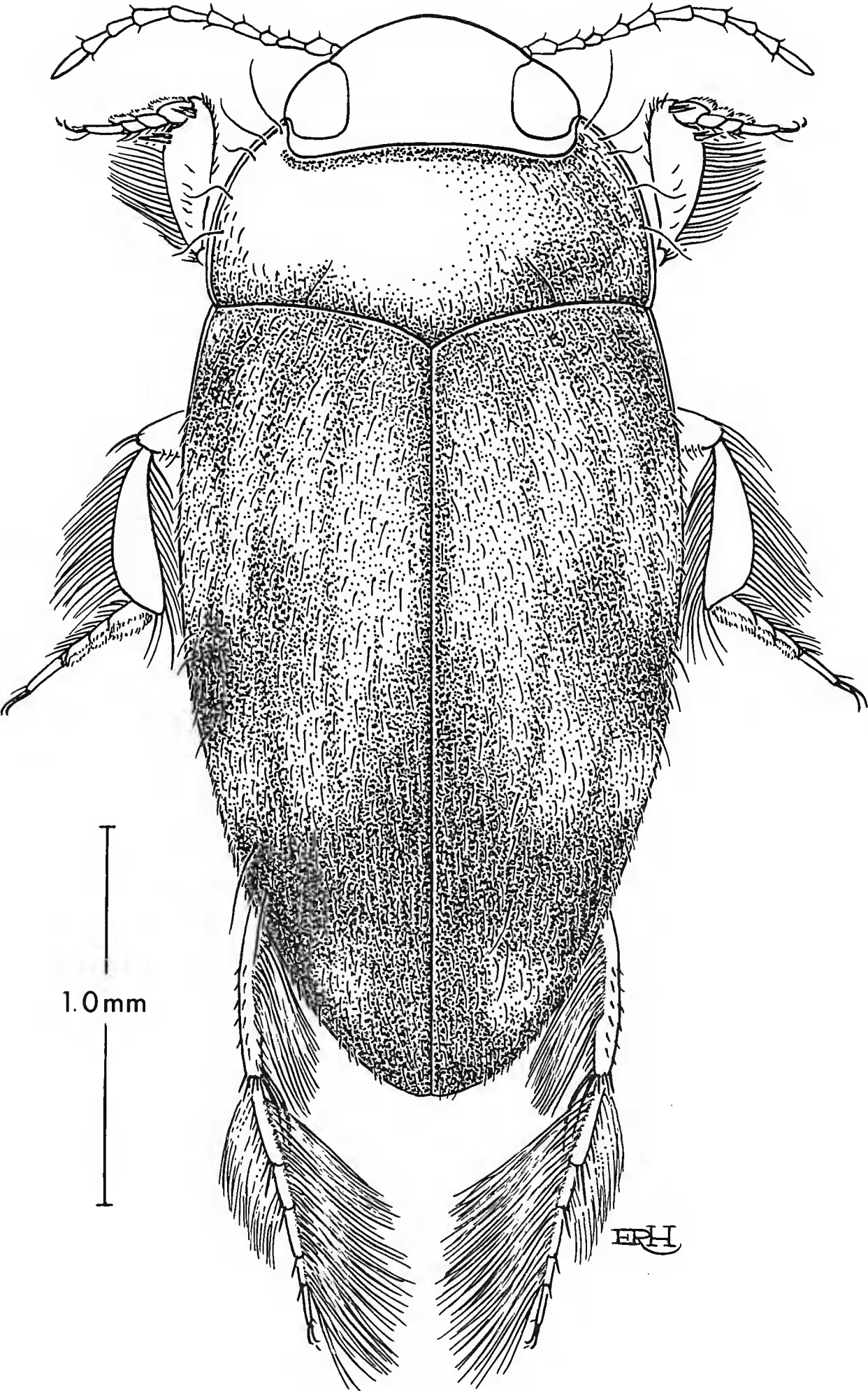


Fig. 7. *Youngulus franki*, n. gen., n. sp., habitus view.

tremely faint indication of one); sides narrowly evenly margined laterally; epipleuron shallowly excavated basally, without transverse carina. Prosternum slightly and moderately broadly elevated on midline before procoxae; process rather broad, shallowly depressed medially and unmargined, sides slightly converging posteriorly, apex obtusely rounded. Intercoxal process of metasternum narrow; the lateral margins continuous with those of middle coxal cavities. Metacoxal processes not strongly incised at middle; with narrow medial longitudinal groove terminating at hind edge of metasternum; coxal lines very slightly divergent anteriorly. Last abdominal sternum with very shallow medial and lateral depressions. Anterior and middle tarsi pseudotetramerous; third tarsal segment moderately bilobed; protarsal claws short, slender, unequal, outer (anterior) claw only about half as long as inner claw; mesotarsal and metatarsal claws long, slender, and equal in length. Protibiae strongly emarginate on apex (Fig. 11). Metatibial spurs long and slender, inner spur longer and strongly curved with apex directed away from body. Metatrochanter and metafemur greatly enlarged, inflated, closely attached (Fig. 12) and the two appearing as a robust wedge-shaped structure. Male genitalia with parameres jointed; median lobe typical hydroporine type. Dorsum moderately finely densely punctate. Integument with opalescent sheen especially on elytra, metasternum, and second abdominal sternum.

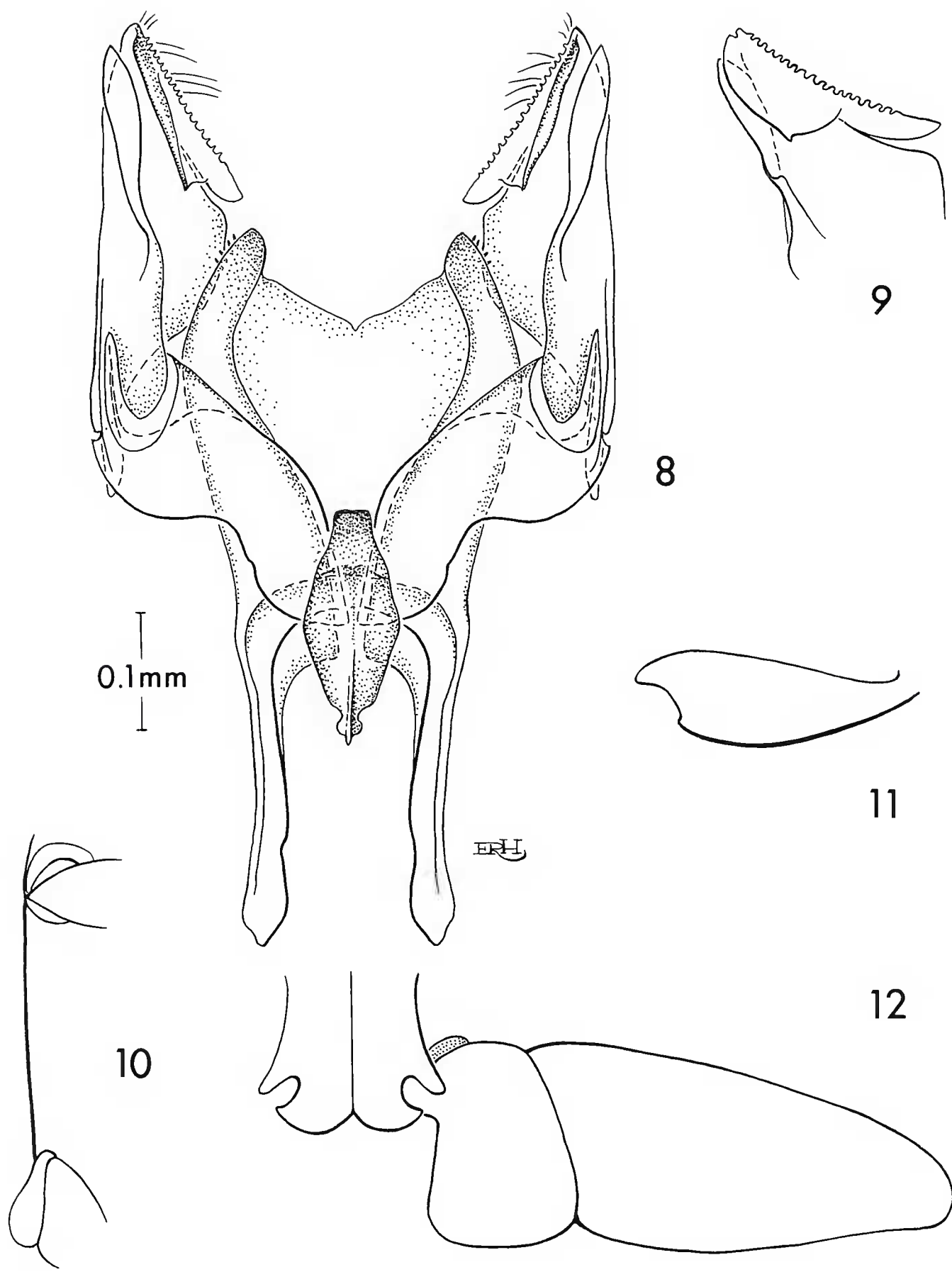
*Type-species.*—*Youngulus franki*, new species.

*Etymology.*—*Youngulus*, named for Frank N. Young who has contributed many excellent studies on aquatic beetles of the Western Hemisphere, and whose work on the bidessine dytiscids enabled me to recognize this new genus. Gender: masculine.

***Youngulus franki*, new species**  
(Figs. 7–12)

Holotype male: Body form (Fig. 7) elongate-oval. Length 3.0 mm; greatest width 1.8 mm. Color reddish brown; head and pronotum concolorous. Elytron indistinctly vittate-fasciate, with dark reddish-brown vittae as follows: a sutural; three vague, narrow ones on disc; and three lateral maculae in a row (an interrupted lateral vitta). Elytral vittae interrupted in humeral area, on lateral area, on lateral third just anterior to midlength, on lateral two-thirds just posterior to midlength and mostly terminated in a transverse fascia well before apex. Integument of elytra, metasternum, and second abdominal sternum with opalescent reflection in certain light. Venter reddish brown.

Head shining, smooth between moderately fine, sparse punctures; punctures on disc separated by about 3 to 5 times their width; clypeal punctures fine and moderately punctate; with slender yellowish setae arising from the



Figs. 8–12. *Youngulus franki*, n. gen., n. sp. Fig. 8, Male genitalia, ventral view. Fig. 9, Paramere, medial view of apex. Fig. 10, Metasternum in profile. Fig. 11, Protibia, outline. Fig. 12, Metatrochanter and metafemur, ventral view.



punctures. Antenna slender, segments not compactly attached. Clypeus not thickened nor margined. Labrum sparsely finely punctate and broadly deeply emarginate apicomediaally. Ventral surface of head smooth.

Pronotum arcuate laterally, sides finely evenly margined for entire length; base moderately bisinuate; apicolateral angles acute; posterolateral angles obtuse; punctures coarser than those on head, sparser on disc and more dense posteriorly and laterally; discal punctures separated by 1 to 4 times their width; shallow, thin, strongly incurved plicae on base extending forward about one-third length of pronotum; sparse slender yellowish setae arising from punctures. Prosternum slightly and moderately broadly elevated on midline before procoxae; process rather broad, shallowly depressed medially and unmargined, sides slightly converging posteriorly, apex obtusely rounded, surface finely densely punctate; apex obtusely rounded and extending almost to midlength of mesocoxae. Mesosternum typical, unmodified. Intercoxal process of metasternum on same plane as posterior part, not interrupted (Fig. 10).

Scutellum hidden.

Elytron without basal plica (or with extremely faint indication of one); arcuate and margined laterally; apex moderately rounded; surface punctate similarly to head but punctures coarser and slightly denser; punctures on disc separated by 1 or 2 times their width; each puncture bearing a long, slender yellow seta; cuticle between punctures microalutaceous; epipleuron shallowly excavated basally, without carina, surface microalutaceous and sparsely finely punctate almost to apex.

Venter mostly microalutaceous. Metacoxal plates microalutaceous; with coarse seta-bearing punctures (except posteromedially), punctures separated by 1 or 2 times their width. Abdominal sternum 2 finely microalutaceous; sterna 3 and 4 smooth except each with two irregular anterior rows and two irregular posterior rows of seta-bearing punctures. Front and middle coxae finely, moderately densely punctate. Hind trochanter smooth except for a few punctures. Front femur practically impunctate on ventral surface; middle femur with several rows of coarse punctures along front and hind margins; hind femur with few fine seta-bearing punctures. Front and middle legs pseudotetramerous; first, second, and third segments broad, bearing dense pads of setae modified as cupules; fourth segment minute, hidden between lobes of third segment. Protarsal claws slender, unequal; outer (anterior) claw only about half as long as inner claw. Mesotarsal and metatarsal claws long, slender, and equal in length. Front, middle, and hind tibiae each with a fringe of long natatory setae on inner and outer surface. Front tibia with apex strongly emarginate (Fig. 11). Metatibial spurs long and slender; inner spur longest and strongly curved, apex directed laterally away from body. Metatrochanter and metafemur greatly enlarged, inflated, closely attached (Fig. 12) and the two appearing as a robust wedge-shaped structure.

Male genitalia complex with parameres jointed and median lobe typically hydroporine as illustrated (Figs. 8, 9).

*Etymology*.—*franki*, named for Frank N. Young, whose previous publications on the Bidessini allowed me to recognize this new genus, new species, and for numerous favors and gifts of specimens in past years.

*Type-data*.—Holotype male: COLOMBIA: Meta: Villavicencio (10 km south), 3 and 4 Mar. 1969, P. and P. Spangler. USNM Type No. 76699, deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

*Habitat*.—The type-specimen was collected in a shallow, weedy, roadside ditch; elevation 305 m.

### Discussion

The two new genera described here key to the genus *Bidessodes* in Young's (1967) key to the American genera of bidessine dytiscid beetles. However, members of the genus *Hughbosdinius* may be distinguished from members of the genus *Bidessodes* and all other bidessine dytiscids known to me by the distinctive, very deep, transverse, broad depression of the metasternum directly behind the mesocoxae; by the strong longitudinal carina on the midline of the prosternum; and the broad, subtriangular penultimate and ultimate segments of the labial palpi. Members of the genus *Youngulus* may be distinguished from all other bidessine dytiscids known to me by the greatly enlarged, inflated, wedge-shaped, combined metatrochanter and metafemur; by the long slender metatibial spurs; and the inner spur which is the longer and is strongly curved with the apex away from the body.

The following couplets substituted in place of the second rubric of couplet 13 in Young's (1967) key will distinguish the genera *Hughbosdinius* and *Youngulus* from *Bidessodes*.

1. Intercoxal process of metasternum separated from posterior part of metasternum by a very deep, transverse, broad depression; prosternum strongly longitudinally carinate on midline on anterior half; penultimate and ultimate segments of labial palpi modified—broad and subtriangular; Venezuela . . . . . *Hughbosdinius* Spangler
- Intercoxal process of metasternum continued posteriorly uninterrupted and on same plane as posterior part; prosternum not longitudinally carinate; ultimate and penultimate segments of labial palpi unmodified . . . . . 2
2. Metatrochanter and metafemur greatly enlarged, inflated, closely attached; the two appearing as a robust, wedge-shaped structure; Colombia . . . . . *Youngulus* Spangler
- Metatrochanter and metafemur normal, not enlarged, inflated, nor wedge-shaped; Central and South America . . . *Bidessodes* Régimbart

I am very grateful to the administrators of the Smithsonian Institution's Research Foundation for SI Grant No. Sg0633100 for the financial support for fieldwork during which time the new taxa described above were collected. For assistance with the South American fieldwork and for reviewing and typing this manuscript I thank my wife Phyllis M. Spangler. I also extend my thanks to Mrs. Elaine R. Hodges, Smithsonian Institution staff artist, for preparing the illustrations in her usual lucid and attractive style.

### Literature Cited

- Young, F. N. 1967. A key to the genera of American Bidessine water beetles, with descriptions of three new genera (Coleoptera: Dytiscidae, Hydroporinae). *Coleopt. Bull.*, 21:75-84.